Analysis of pediatric patient admitted through Emergency at Patan Hospital, Nepal

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ABSTRACT

Introduction: It is very important to know the important causes of emergency visit of children and mortality. Identifying diseases which are common and severe enables planners to design proper priority setting and intervention planning.

Methods: This is a descriptive retrospective study done at Patan Hospital reviewing files of Pediatric patients admitted from Poush 2065 to Mangshir 2066 (December 2008 to December 2009).

Results: Out of 612 records selected, top five causes of hospital admission observed were Pneumonia 25.8%, Acute gastroenteritis 12.7%, Neonatal sepsis 12.3%, Febrile Seizure 12.1% and Enteric Fever 4.7%. The mean hospital stay observed was 4.93 days with SD 4.73 days. In this study mortality rate was 2.1% with major causes being Severe Sepsis 38.4% and Severe Pneumonia 30.7%.

Conclusions: In this study Pneumonia is found to be the common cause of pediatric admission and also contributes significantly in mortality.

Keywords*: Pediatric Emergency, Common Pediatric Admission*

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INTRODUCTION

Analysis of hospital admissions to study the disease patterns in the community has various limitations, for example, selection of very ill patients, those who are able to pay and whose home happens to be near the hospital. However, such analyses provide valuable information about severe forms of illnesses and help to identify diseases which are common and those which are rare. It also provides basis for comparison of the pattern with other communities as well as with the past situation in the same area so that any change can be identified and reasonably discussed.

Several factors influence the distribution of disease. Most important elements which are necessary for occurrence of disease transmission are existence of susceptible population, disease causing organism and means of transmission. Any change in the magnitude of these agents affects the prevalence or incidence of diseases in the community. So common disease may be compared over time or between regions and countries.[1] This helps to formulate plans and policies at hospital and community level.

Health facility-based studies can give us proxy information on the burden of diseases in the community. Knowing the important causes of childhood morbidity and mortality enables planners to design proper priority setting and intervention planning. In Nepal infant mortality rate is 41 per 1000 and under 5 mortality rate is 51 per thousand.[2] Overall major disease causing morbidity is skin disease, diarrhea, acute respiratory infection, intestinal worms, pyrexia of unknown origin etc. according to fact sheet published by Ministry of Health, Government of Nepal. So one of the important areas for research would be seeing the patterns of emergency admission and their possible associated factors

The objective of this study is to analyze the characteristics of patients admitted under the emergency unit of Patan Hospital and identify important causes of admission and deaths. The study findings can also be compared with those of previous studies and can give sound information if there is any change in disease distribution in the past years. The findings can also be used to direct important areas of Analysis of admissions to the emergency ward of Patan Hospital.

METHODS

This is retrospective descriptive study conducted in Patan hospital. Records of patient attending emergency department from Poush 2065 to Mangshir 2066 (December 2008 to December 2009) were reviewed. All patients admitted to the pediatric ward from Emergency Department were included and patients discharged from the emergency department were excluded from the study.

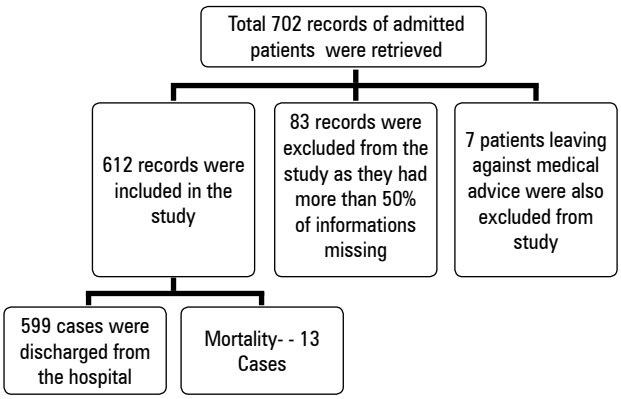

Figure 1. Flow Chart showing patient selection

Age was classified as standard protocol i.e. <1 week as early neonate, < 28 days as neonate, up to 1 year as infant, 1 year to 3 years as Pre School and > 3 years as school going. Records were divided according to their residence as Lalitpur, Kathmandu, Bhaktapur and others. Similarly ethnicity was classified as per Nepal government's standard classification. However orphans from orphanage and foreigners were kept under separate classification. Five common causes of admission through emergency department were recorded; similarly common cause of death was also recorded. Statistical analysis was done using Microsoft Excel.

RESULTS

Total 612 records were reviewed out of which 59.6% were male and 40.4% were female. Neonates below 1 week

were 9%, neonates above 1 week were 7.5%, Infants were 32.2%, Pre school going children were 22.2% and School going children were 29.1%.

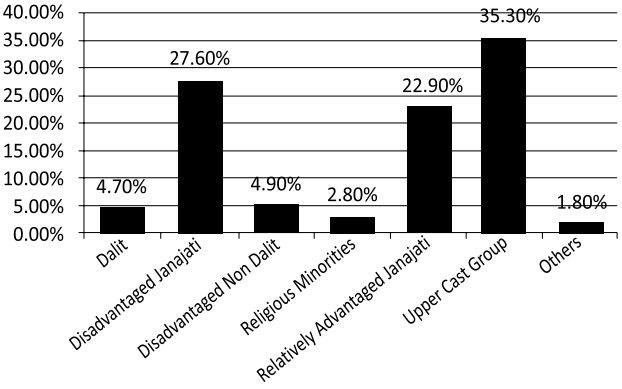

Figure 2. Frequency distribution according to Ethnicity

In the study most of the patients were from Lalitpur i.e. 57.8% followed by Kathmandu 25.5%, Outside Valley 10.5%, Bhaktapur 5.7% and others 0.5%. The mean hospital stay observed was 4.93 days with SD 4.73 days. The common causes of admissions through emergency department are as follows.

Common cause of Hospital Admission through ER	Frequency (%)
Pneumonia	22.7
Febrile Seizure	10.3
AGE (Acute gastroenteritis)	10.1
UTI (Urinary tract infection)	4.7
NNS (Neonatal sepsis)	4.1

Table 1. Top 5 causes of admission through ER

Top 5 causes for neonates below 1 week admitting through emergency was as follows; Assumed sepsis 27.2%, Pneumonia 12.7%, Culture Positive NNS 10.9%, Suspected NNS 9.09%, UTI 9.09%, and Neonatal Jaundice 7.2%. Similarly top 5 causes for neonates above 1 week admitting through emergency were; Pneumonia 21.7%, Assumed Sepsis 17.3%, Suspected Sepsis 17.3%, Culture Positive NNS 6.5%, AGE 6.5%, UTI 4.3%, Bacterial Meningitis 4.1%.

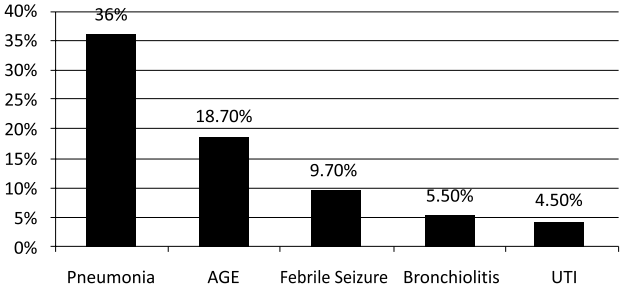

Figure 3. Top 5 causes of hospital admission in infant

Causes for Pre School children visiting hospital	Frequency (%)
Febrile Seizure	26.4
Pneumonia	19.11
AGE	11.7
UTI	5.1
Seizure Disorder	4.6

Table 2. Top 5 causes of hospital admission in Pre School Children

Top 5 causes of admission in school going children through emergency were Pneumonia 14.0%, Enteric Fever 9.5%, AGE 8.4%, Seizure Disorder 4.4%, Febrile Seizure 4.4% and Reactive Airway disease 3.9%. In this study mortality rate was 2.1% with major causes being Severe Sepsis 38.4% and Severe Pneumonia 30.7%.

Ethnicity	Common cause of admission
Dalit	Pneumonia (31.03%), Urinary Tract Infection (13.7%), Acute Gastroenteritis (10.3%), Bronchiolitis (6.8%), Staphylococcus skin infection (3.4%)
Disadvantaged Janajati	Pneumonia (24.8%), Febrile Seizure (15.3%), Acute Gastroenteritis (10.6%), Urinary Tract Infection (3.5%), Assumed Sepsis (2.9%)
Disadvantaged Non Dalit	Febrile Seizure (16.6%), Pneumonia (16.0%), Seizure Disorder (10.0%), Urinary Tract Infection (6.6%), Enteric Fever (3.3%)
Religious Minority	Staphylococcus skin infection (17.7%), Enteric Fever (17.0%), Pneumonia (12.1%), Urinary Tract Infection (11.1%), Febrile Seizure (3.3%)
Relatively Advantaged Janajati	Pneumonia (13.5%), Acute Gastroenteritis (13.1%), Febrile Seizure (12.1%), Urinary Tract Infection (7.1%), Assumed Sepsis (6.4%)
Upper Cast Group	Pneumonia (27.7), Acute Gastroenteritis (7.4%), Febrile Seizure (6.9%), Reactive airway disease (6.4%), Urinary Tract Infection (5.9%)

Table 3. Common cause of hospital visit according to Ethnicity

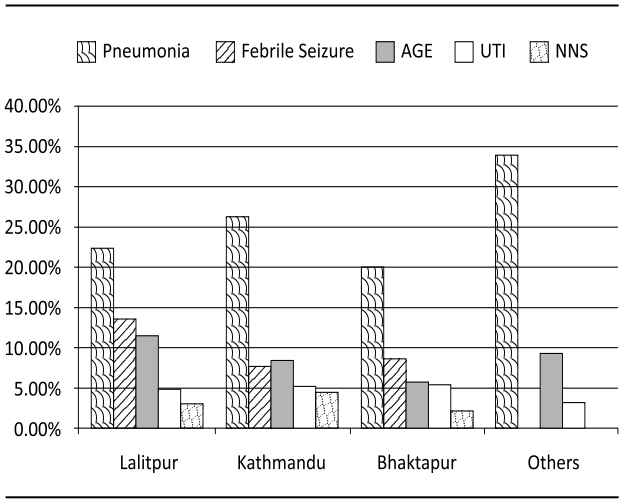

Figure 4. Disease distribution according to place

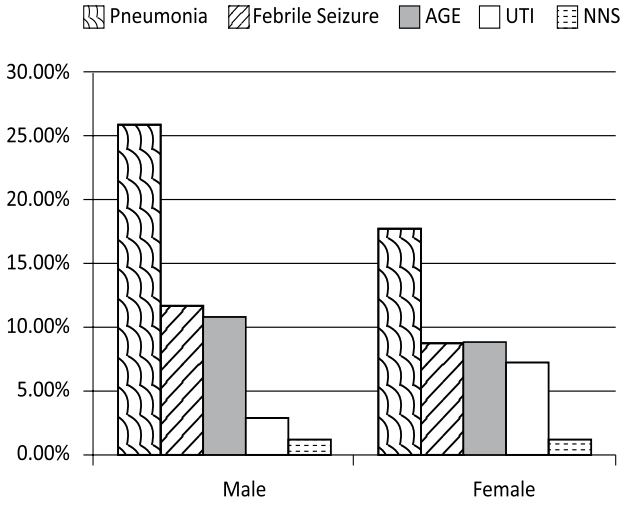

Figure 5. Disease Distribution according to Sex

DISCUSSION

Most of the patients coming to the hospital were from upper cast group. Since Patan Hospital is a tertiary level hospital and is situated in Sub Metropolitan city it is easily assessable to the upper cast group patients. However, a significant number of patients are also from disadvantaged janjati. A large number of patients were from Lalitpur district as Patan Hospital is situated in Lalitpur district.

Common age group for admission through ER was infant, the findings were similar to the study published in Scotland which suggest that children under the age of one year have the highest admission rate, largely attributable to emergency admissions (239.1 per 1,000 population).[3]

Most common cause of hospital admission through ER was Pneumonia This finding is consistent with the findings of studies in other parts of world. In a study done in Ethiopia in 2007, out of 2,522 admissions, severe pneumonia accounted for 38.3% of the total admissions. In the same study 360 (14.3%) died in the emergency ward.[4] In our study mortality was however low i.e. 2.1% with major cause of death being severe sepsis.

A similar study done by Taylor and Davidson showed the common patterns of admission was respiratory disease like bronchitis, pneumonia, URTI and bronchiolitis followed by non respiratory disease like pyelonephritis and meningitis.[5] In our study also the major cause of hospital admission was pneumonia followed by Febrile Seizure, AGE, UTI and NNS. However in preschool children febrile seizure was observed to be more common.

CONCLUSION

Pneumonia is the most common cause of admission through emergency department. Other common cause of admissions are Febrile seizure, Acute gastroenteritis, Urinary tract infection and Neonatal Sepsis. Major cause of mortality is severe sepsis. So measures should be taken at the community level to decrease the load of common disease also Emergency department should have protocol for management of at least these common diseases.

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